

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Presented) A coarsening resistant automotive exhaust catalyst composition comprising:

a metal or metal-containing compound that alters the amount of a chemical component in the automobile exhaust; and

a component having barium metal ions bonded to a conjugate base oxide of an inorganic acid, the inorganic acid having a K_a such that the automotive catalyst composition resists phase transitions that reduce surface area.

2. (Previously Presented) The automotive exhaust catalyst composition of claim 1 wherein the conjugate base oxide is a phosphorus oxide and the inorganic acid is a phosphorus-containing acid.

3. (Previously Presented) The automotive exhaust catalyst composition of claim 2 wherein the component includes a phosphate-modified alumina compound.

4. (Previously Presented) The automotive exhaust catalyst composition of claim 3 wherein the phosphate-modified alumina compound comprises a phosphate-doped alumina compound.

5. (Previously Presented) The automotive exhaust catalyst composition of claim 4 wherein the phosphate-doped alumina compound comprises a phosphate-doped gamma-alumina compound.

6. (Original) The automotive exhaust catalyst composition of claim 1 wherein the component having metal ions bonded to a conjugate base oxide of an inorganic acid is

present in an amount from about 0.3 weight percent to about 50 weight percent of the total weight of the exhaust catalyst composition.

7. (Original) The automotive exhaust catalyst composition of claim 1 wherein the component having metal ions bonded to a conjugate base oxide of an inorganic acid is present in an amount from about 1 weight percent to about 20 weight percent of the total weight of the exhaust catalyst composition.

8. (Original) The automotive exhaust catalyst composition of claim 1 wherein the conjugated base oxides are milled or grounded into fine particles suitable for washcoating on substrates.

9. (Original) The automotive exhaust catalyst composition of claim 1 wherein the conjugate base oxide are nanoparticles.

10. (Original) The automotive exhaust catalyst composition of claim 1 further comprising a catalyst support.

11. (Original) The automotive exhaust catalyst composition of claim 1 wherein the conjugate base oxides are deposited onto or impregnated in the catalyst support.

12. (Original) The automotive exhaust catalyst composition of claim 10 wherein the catalyst support is selected from the group consisting of Al_2O_3 , SiO_2 , TiO_2 , zeolites, and combinations thereof.

13. (Previously Presented) The automotive exhaust catalyst composition of claim 2 wherein the component includes a phosphate-modified silica-alumina compound.

14. (Previously Presented) The automotive exhaust catalyst composition of claim 1 wherein the metal or metal-containing compound comprises a precious metal is selected from the group consisting of platinum, palladium, and rhodium.

15. (Original) The automotive exhaust catalyst composition of claim 14 wherein the precious metal is platinum.

16. (Original) The automotive exhaust catalyst composition of claim 1 further comprising a Ce-containing oxides.

17. (Original) The automotive exhaust catalyst composition of claim 16 wherein the Ce-containing oxide is a mixed oxide selected from the group consisting of Ce/Zr oxide, Ce/Pr oxide, Ce/Pr/Zr oxide, and combinations thereof.

18. (Original) A NO_x trap comprising:
a substrate;
a catalyst composition coated upon the substrate, the catalyst composition comprising;
a precious metal-containing compound;
a component having barium metal ions bonded to a conjugate base oxide of an inorganic acid, the inorganic acid having a K_a such that the automotive catalyst composition resists phase transitions that reduce surface area.

19. (Previously Presented) The NO_x trap of claim 18 wherein the conjugate base oxide is a phosphorus oxide and the inorganic acid is a phosphorus-containing acid.

20. (Previously Presented) The NO_x trap of claim 19 wherein the component includes a phosphate-modified alumina compound.

21. (Previously Presented) The NO_x trap of claim 20 wherein the phosphate-modified alumina compound comprises a phosphate-doped alumina compound.

22. (Original) The NO_x trap of claim 18 wherein the catalyst composition further comprises a catalyst support.

23. (Previously Presented) The NO_x trap claim 21 wherein the phosphate-doped alumina compound comprises a phosphate doped gamma-alumina compound.

24. (Currently Amended) A method of inhibiting coarsening in an automobile exhaust catalyst composition having a barium ~~an alkali or alkaline-earth metal~~ containing compound, the method comprising:

combining impregnating a phosphate-doped alumina compound with a barium-containing solution; and

mixing the phosphate doped alumina impregnated with the barium containing solution with a compound containing at least one soluble metal compound to obtain a metal or metal-containing compound with a component having barium ions bonded to a conjugate base oxide of an inorganic acid, the inorganic acid having a K_a such that the automotive catalyst composition resists phase transitions that reduce surface area.

25. (Previously Presented) The method of claim 24 wherein the conjugate base oxide is a phosphorus oxide and the inorganic acid is a phosphorus-containing acid and further comprising modifying an alumina compound with a phosphorus-containing acid to obtain a phosphorus-modified alumina compound forming a portion of the component.

26. (Previously Presented) The method of claim 25 wherein the modifying step includes doping the alumina compound with phosphorus to obtain the phosphorus-modified alumina compound.

27. (Previously Presented) The method of claim 24 wherein the phosphate-modified alumina compound comprises a phosphate-doped gamma-alumina compound.

28. (New) The method of claim 24 wherein the soluble metal compound comprises a precious metal is selected from the group consisting of platinum, palladium, and rhodium.

29. (New) The method of claim 28 wherein the precious metal is platinum.